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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,738	12/11/2003	David B. Allen	2003P14124US	8398

7590 08/11/2006

Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
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EXAMINER	
MILLER, DANIEL H	

ART UNIT	PAPER NUMBER
1775	

DATE MAILED: 08/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/733,738	ALLEN, DAVID B.	
	Examiner	Art Unit	
	Daniel Miller	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2 and 4-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2 and 4-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schaefer et al (US 4,735,656).

Schaefer teaches an abrasive tip material for turbine blade tips. The abrasive material comprises MCrAlY matrix with ceramic particles dispersed therein. The ceramic particulate may be a mixture of ceramics such as BN, and SiN. Schaefer does not specifically teach the amounts of ceramic particles to be added. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use amounts of SiN and cBN that provide the desired abrasiveness to the coating, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 233). SiN and cBN have known values of hardness; therefore one of ordinary skill would have found it obvious to vary the amounts to achieve the desired abrasive quality in the coating.

Claims 4, 5, 7-15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schaeffer et al (US 4,735,656) in view of Freling et al (US 6,190,124). Schaeffer teaches an abrasive tip material as discussed above, but does not teach additional compositions of MCrAlY or specifics of the ring segment with which the tip comes into contact. Freling teaches a seal system including an abrasive tip and an abradable seal surface, and further teaches that typical abrasive tips comprise a plurality of cBN grits surrounded by an electroplated metal matrix. The metal matrix may be MCrAlY where M is a mixture of Ni and Co. One of ordinary skill in the art would have found it obvious to use alternative compositions of MCrAlY as taught by Freling in the article of Schaefer, as it is clearly demonstrated to be used successfully in combination with similar ceramic particles in a similar environment. Furthermore, one of ordinary skill in the art would have found it obvious to use the abrasive tip of Schaeffer with an abradable seal surface like that taught by Freling, as it is clearly taught to be a common coating for abrasive tips used in conjunction with abradable coatings of YSZ.

Claims 4, 5, 7-15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schaeffer et al (US 4,735,656) in view of O'Hara et al (US 6,896,485). Schaeffer teaches an abrasive tip material as discussed above, but does not teach additional compositions of MCrAlY or specifics of the ring segment with which the tip comes into contact. O'Hara teaches a seal system including an abrasive tip and an abradable seal surface, wherein the abrasive tip comprises MCrAlY, formed mainly of Fe, Ni, Co, Cr, Al, and Y, and abrasives formed mainly of cBN, alumina, Sic, or

diamonds. One of ordinary skill in the art would have found it obvious to use alternative compositions of MCrAlY as taught by O'Hara in the article of Schaefer, as it is clearly demonstrated to be used successfully in combination with similar ceramic particles in a similar environment. Furthermore, one of ordinary skill in the art would have found it obvious to use the abrasive tip of Schaeffer with an abradable seal surface like that taught by O'Hara, as it is clearly taught to be a common coating for abrasive tips used in conjunction with abradable coatings of YSZ.

Response to Arguments

Applicant states that the rejection of claim 6 is not well founded. Claim 6 is considered a method limitation and does not provide structural distinction over the prior art.

Regarding Schaeffer, applicant argues that the abrasive coating of the instant claims has surprising proved to efficiently retain the benefits of each material system. Applicant states that including substantially greater amounts of cBN relative to SiN would cause degradation, and reversing this proportion would decrease the cutting ability. The instant specification states on page 6 that relative amounts of the abrasives can be varied to suit the specific engine application, which seems to imply that one of ordinary skill would be able to adjust the amounts of abrasives based on the desired function. Schaeffer clearly teaches that both SiN and BN may be used together in the abrasive tip. It is maintained that one of ordinary skill in the art would have found it

obvious to adjust the amounts of the two abrasives based upon their known hardness and durability to form an abrasive tip suitable for the specific engine application. Regarding claims 2, 4-5, and 7 addressed by applicant in remarks of 5/15/2006 the argument is deemed unpersuasive. The examiner contends that given the teachings of the prior art (see above) the mixture of 50:50 Boron and silicon nitride would be obvious to one of ordinary skill in the art.

a. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Miller whose telephone number is (571)272-1534. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Mcneal can be reached on (571)272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Daniel Miller

JENNIFER C. MCNEIL
SUPERVISORY PATENT EXAMINER
8/3/06